Interview Summary

Applicant representative and Examiner discussed regarding an intermediate blended image in claim 12, with respect to alpha blending, and an alpha value calculation module recited in claim 28. Applicant representative agreed to amend the claims to specify explicitly the alpha blending mode.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Christopher J. Reckamp, on 9/3/2008.

The application has been amended as follows:

Amendment to the Claims 12 and 28

Claim 12. A video graphics module comprises:

a video graphics pipeline module operable to process at least one image layer;

a hardware cursor pipeline operable to process a cursor image;

wherein the at least one image layer and the cursor image are operably received from a frame buffer; and

a blending circuit operably coupled to the video graphics pipeline and the hardware cursor pipeline, wherein the blending circuit is operable to blend, in accordance with an alpha blending convention, the at least one image layer and the cursor image, to produce an output image having the cursor image alpha blended in a foremost position with respect to the at least one corresponding image layer;

wherein the blending circuit comprises a first mixing module and a second mixing module, wherein the first mixing module is operable to blend the at least one image layer to produce an intermediate blended image based on a determined alpha blending mode from a plurality of modes, and wherein the second mixing module is operable to blend the cursor image with the intermediate blended image.

Claim 28. A video graphics data blending circuit comprises:

a first video graphics pipeline operable to produce a first image layer based on corresponding first image layer data from at least one frame buffer;

a second video graphics pipeline operable to produce a second image layer based on corresponding second image layer data from the at least one frame buffer;

a third video graphics pipeline operable to produce a third graphics image layer based on corresponding graphics image data from the at least one frame buffer;

a first blending module operable to blend the first and second image layers based on an alpha calculation using a specified alpha value to generate an intermediate blended image;

an alpha value calculation module operably coupled to the first blending module, wherein the alpha value calculation module generates the specified alpha ~~valued~~ value based on a determined alpha blending mode from a plurality of modes wherein the modes correspond to

using at least one of: a global alpha value, a per pixel value associated with at least one of the first and second image layers, and a non-alpha blend mode; and

a second blending module operable to blend the intermediate blended image with the third graphics image layer using alpha blending to produce an output image such that the graphics image layer has a foremost position in the output image.

Allowable Subject Matter

Claims 1-4, 7-12, 14, 16-21, 23, 25-33 are allowed.

Claims 5-6, 13, 15, 22, 24 are cancelled; see remarks filed on 10/18/2007, 6/7/2007, and 10/24/2005.

The cited prior arts do not teach or suggest the features of "a blending module operably coupled to the plurality of video graphics pipelines, wherein the blending module is operable to blend the corresponding image layers in a predetermined blending order, thereby creating an intermediate blended image, and blending the intermediate blended image with the foremost graphics image layer, to produce an output image having the foremost graphics image layer blended in a foremost position with respect to the other corresponding image layers with negligible loss of information of the other corresponding image layers, wherein the blending module is selectably controllable to blend the intermediate blended image with the foremost graphics image layer in accordance with an alpha blending convention or an AND/XOR blending convention; wherein the blending module comprises a first mixing module and a second mixing module, wherein the first mixing module is operable to blend at least two of the corresponding image layers to produce the intermediate blended image, and wherein the second mixing module is operable to blend the foremost graphics image layer with the intermediate

blended image; using one of a plurality of pixel depths" as recited in independent claim 1. Claims 2-4, 7-11 are allowed with similar reasons as set forth in claim 1, above.

The cited prior arts do not teach or suggest the features of "a blending circuit operably coupled to the video graphics pipeline and the hardware cursor pipeline, wherein the blending circuit is operable to blend, in accordance with an alpha blending convention, the at least one image layer and the cursor image, to produce an output image having the cursor image alpha blended in a foremost position with respect to the at least one corresponding image layer; wherein the blending circuit comprises a first mixing module and a second mixing module, wherein the first mixing module is operable to blend the at least one image layer to produce an intermediate blended image based on a determined alpha blending mode from a plurality of modes, and wherein the second mixing module is operable to blend the cursor image with the intermediate blended image" as recited in independent claim 12. Claims 14, 16-23 are allowed with similar reasons as set forth in claim 12, above.

Regarding claims 25-27, and 33, the cited prior arts do not teach or suggest the features of "receive a first image layer from a first video graphics pipeline wherein the first image layer is based on corresponding first image layer data from at lease one frame buffer; receive a second image layer in parallel with the first image layer from a second video graphics pipeline wherein the second image layer is based on corresponding second image layer data from the at least one frame buffer; and receive a graphics image layer from a third video graphics pipeline wherein the graphics image layer is based on corresponding graphics image data from the at least one frame buffer; a processing module; memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to (a) determine an

alpha blending mode from a plurality of modes, wherein each of the plurality of modes corresponds to at least one of utilizing a per pixel alpha blending value, utilizing a global alpha blending value, and utilizing a key alpha blending value; (b) obtain blending information based on the alpha blending mode; (c) generate a corresponding blending value based on the blending information; and (d) provide the corresponding blending value to the blending module; wherein the blending module is further operable to blend the first and second image layers based on an alpha calculation using the corresponding alpha value to generate an intermediate blended image; and wherein the blending module is further operable to blend the intermediate blended image with the graphics image layer using alpha blending to produce an output image such that the graphics image layer has a foremost position in the output image; the alpha key indicates from at least one corresponding per pixel alpha value associated with an image layer input" as recited in independent claim 33. Claims 25-27 are allowed with similar reasons as set forth in claim 33, above.

The cited prior arts do not teach or suggest "a third video graphics pipeline operable to produce a third graphics image layer based on corresponding graphics image data from the at least one frame buffer; first blending module operable to blend the first and second image layers based on an alpha calculation using a specified alpha value to generate an intermediate blended image; an alpha value calculation module operably coupled to the first blending module, wherein the alpha value calculation module generates the specified alpha value based on a determined alpha blending mode from a plurality of modes wherein the modes correspond to using at least one of: a global alpha value, a per pixel value associated with at least one of the first and second image layers, and a non-alpha blend mode; and a second blending module operable to blend the

intermediate blended image with the third graphics image layer using alpha blending to produce an output image such that the graphics image layer has a foremost position in the output image", as recited in independent claim 28.

Claims 29-32 are allowed with similar reasons as set forth in claim 28, above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAVID A. AMINI whose telephone number is (571)272-7654. The examiner can normally be reached on 8-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on 571-272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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